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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/065,883	11/27/2002	David A. Langan	131097 - 1	5284
41838	7590	02/24/2006	EXAMINER	
GENERAL ELECTRIC COMPANY (PCPI)			KASSA, YOSEF	
C/O FLETCHER YODER			ART UNIT	
P. O. BOX 692289			PAPER NUMBER	
HOUSTON, TX 77269-2289			2623	

DATE MAILED: 02/24/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/065,883

Applicant(s)

LANGAN, DAVID A.

Examiner

YOSEF KASSA

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 November 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 11-16 and 21-26 is/are rejected.
- 7) ☒ Claim(s) 7-10, 17-20 and 27-30 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 November 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>02/27/03</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6, 11-16 and 21-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsujii (U.S. Patent 6,141,399), and in view of Ito (U.S. Patent 5,881,181).

With regard to **claim 1**, Tsujii discloses a method of compressing an intensity dynamic range of an input image to a reduced dynamic range of an image display signal, said method comprising (please refer to col. 6, lines 50-col. 7, lines 11):

b) modifying, i.e., adjusting, the intensity characteristics of the plurality of image components (please refer to col. 6, lines 50-58); and

c) reconstructing (note that region is improved by contrast enhancement process) the plurality of image components into an output image for display on an image display device (please refer to col. 11, lines 4-22, that is, the improved image region by contrast enhancement process transferred to each of the image display device 212 in Fig. 6).

Tsujii does not disclose expressly a) decomposing the input image onto a plurality of image components. However, at the same field of endeavor, Ito discloses this feature (please refer to col. 5, lines 40-54). At the time of the invention, it would have

been obvious to a person of ordinary skill in the art to incorporate the teaching Tsujii image decomposing process into Ito's dynamic range compression system. The suggestion/motivation for doing so would have been to provide transforming an original image onto a multi-resolution space and decompose into plurality of images (please refer to col. 3, lines 20-24 of Ito). Therefore, it would have been obvious to combine Ito with Tsujii to obtain the invention as specified in claim 1.

With regard to **claim 2**, Tsujii discloses wherein in step b), the intensity characteristics of each of said plurality of image components is modified separately (please refer to col. 6, lines 50-58, note that the intensity adjustment process is performed based in sliced images).

With regard to **claim 3**, Tsujii discloses wherein in step b), the modification of the intensity characteristics of said plurality of image components comprises mapping (reads on dynamic range compressing process) a plurality of intensities of an image component to a smaller, i.e., compressed image, plurality of intensities for said image component (please refer to col. 6, lines 50-col. 7, line 11).

With regard to **claim 4**, Tsujii discloses wherein said mapping is performed using a look-up table (please refer to col. 10, lines 39-47).

With regard to **claim 5**, Tsujii discloses wherein said mapping is performed by Calculating (please refer to col. 6, lines 60-65, equation 4 and 5) an intensity range for the image component based upon actual intensities of pixels within the image component (please refer to col. 6, lines 50-67, which reads in dynamic range compressing process).

With regard to **claim 6**, Tsujii is silent about the decomposing of step a) and the reconstructing of step c) are performed using a Laplacian pyramid. However, at the same field of endeavor, Ito discloses this feature (please refer to col. 6, lines 5-20). Ito and Tsujii are combinable because they are form similar dynamic range compression area. At the time of the invention, it would have been obvious to a person of ordinary skill in the art to incorporate the teaching Ito Laplacian pyramid process into Tsujii's dynamic range compression system. The suggestion/motivation for doing so would have been to provide Laplacian pyramid technique to decompose an image signal (please refer to col. 6, lines 5-12 of Tsujii).

Claim 11 is similarly analyzed and rejected the same as claim 1. Except, the additional limitation "an image detector; and a computer coupled to said image detector" (please refer to image sensor 204 in Fig. 6, and CPU in Fig. 6).

Claims 12-16 are similarly analyzed and rejected the same as claims 2-6. Except, claims 12-16 are a system claims.

Claim 21 is similarly analyzed and rejected the same as claim 1. Except, the additional limitation "a computer readable medium having program code recorded thereon" (please refer to col. 9, lines 5-13 of Tsujii).

Claims 22-26 are similarly analyzed and rejected the same as claims 2-6. Except, claims 22-26 are a computer readable medium claim.

Allowable Subject Matter

2. Claims 7-10, 17-20 and 27-30 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the above indication of allowable subject matter:

2a. The prior art of record fails to teach or suggest the formulas cited in **claims 9, 19 and 29**, in combination with all other limitations.

2b. **Claims 7, 8, 10, 17, 18, 20, 27, 28 and 30** are allowable. The closest prior art of record failed to teach or suggest, generating at least one of said plurality of image components by subtracting one of said plurality of expanded images of a given size from one of plurality of reduced images of said given size (**see claims 7, 17 and 27**).

Separate one of a plurality of contrast functions to modify the intensity characteristics of each of plurality of image components, wherein at least one of plurality of contrast functions is different from other contrast functions in plurality (**see claims 8, 18 and 28**).

Combining image components output from plurality of contrast functions such that an image component having a smaller size is expanded to have a larger size before its combination with an image component having larger size (**see claims 10, 20 and 30**).

Other Prior Art Cited

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US Patent No. (6,834,125), (5,450,502), (6,711,302), (5,991,456) and (5,633,511).

Conclusion

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOSEF KASSA whose telephone number is (571) 272-7452. The examiner can normally be reached on Monday-Thursday from 8:00 AM to 6:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BHAVESH MEHTA can be reached on (571) 272-7453. The fax phone numbers for the organization where this application or proceeding is assigned is (571) 273-3800 for regular communication and (571) 273-3800 for after Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service office whose telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published

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applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>.

Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PATENT EXAMINER

Yosef Kassa

A handwritten signature in black ink, appearing to read 'Yassa' or 'Kassa', with a stylized, cursive script.

02/03/06.